

# FusionOne Compute Virtualization Solution



# 01 | Overview

As data continues to grow exponentially and the rise of Internet-driven businesses accelerates, the traditional "server + storage" architecture struggles to keep pace with the evolving demands of modern enterprises. The influx of emerging applications and a dramatic increase in business data call for distributed and cloud-native technologies. Consequently, more companies are turning to virtualization and cloud computing to build their IT systems, enhancing resource utilization and shortening time-to-market for new services.

However, organizations face significant challenges in this transition:

- **Complex Deployment and Management:** Virtual platforms are intricate to deploy and manage, resulting in rising operational costs.
- **Diverse Hardware Integration:** With hardware sourced from multiple vendors, planning, deployment, and optimization require extensive expertise.
- **Varied Vendor Support:** Multi-vendor environments complicate support processes, leading to slower issue resolution.
- **High Maintenance Complexity:** Managing a vast ecosystem of different hardware and virtual platforms increases maintenance burdens.

In response to these challenges, businesses are increasingly focused on cost control, business agility, and risk management. They demand an IT system that is low-cost, quick to deploy, elastic in resource scaling, secure, and high-performing.

The FusionOne Compute Virtualization Solution emerges as a powerful answer, seamlessly integrating advanced software with cutting-edge hardware to deliver exceptional performance, reliability, and security. Its key features include:

- **Automated Deployment:** Accelerate business go-live timelines with streamlined deployment processes.
- **Unified Management:** Simplify operations with centralized management, reducing complexity and overhead.
- **Intelligent Scalability:** Enable dynamic resource scaling to meet fluctuating demands effortlessly.
- **User-Friendly Operations:** Empower your IT team to focus on innovation with easy maintenance.

With the FusionOne Compute Virtualization Solution, you can quickly launch diverse cloud applications while significantly lowering maintenance and management challenges.

# 02 | Features

FusionOne Compute adheres to open architecture standards, integrating server hardware, computing virtualization, network virtualization, and storage virtualization into a comprehensive solution. It supports external storage device integration, enabling on-demand resource allocation and linear scalability.

## Enhanced Efficiency

- **Accelerated Computing:** NUMA and large page memory access enhance virtual machine (VM) performance by up to 30%.
- **High-Speed Networking:** OVS combined with DPDK boosts network forwarding efficiency by 6 times, supporting high-bandwidth 25GE NICs.
- **Live Migration:** QuickAssist Technology (QAT) accelerates migration.

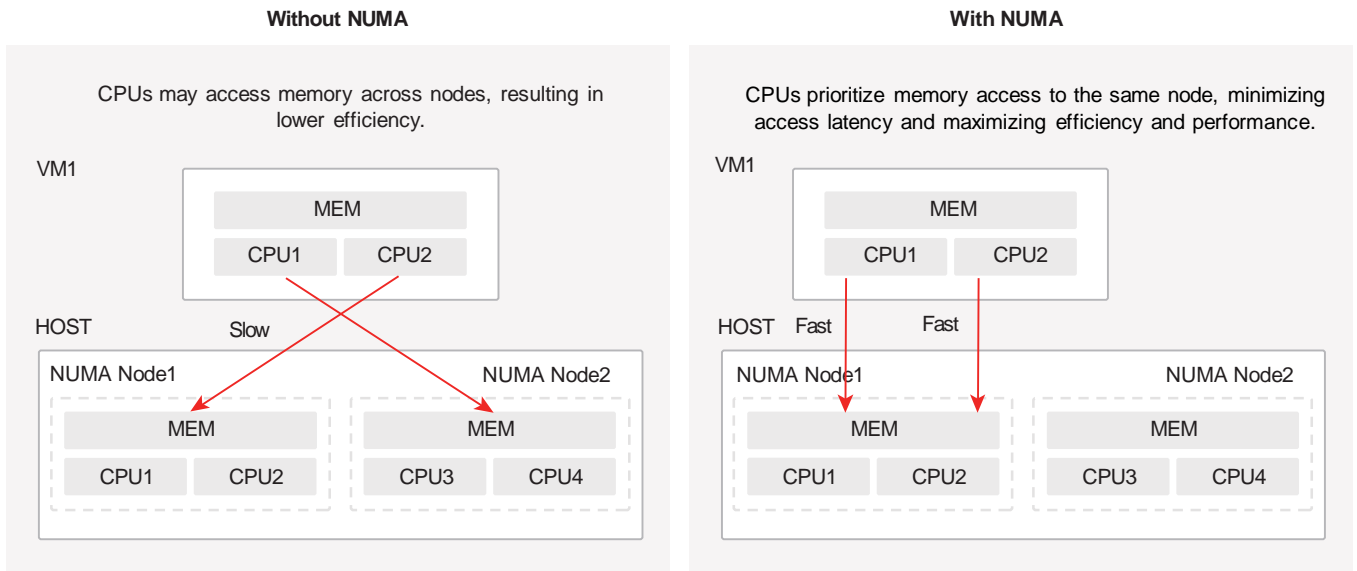
## Solid Reliability

- **Hardware-Level Reliability:** Proprietary hardware is designed for maximum reliability through system redundancy to guarantee operational uptime.
- **Software-Level Reliability:** Features like VM High Availability (HA) and multiple fault-handling strategies ensure robust performance and resilience.

## Pioneering Innovation

- **Technological Advancement:** Deep development for ARM and virtualization enhances I/O performance by 30%.
- **Diversified Computing:** Mixed deployment of x86 and ARM resource pools facilitates smooth business migration.

# 03 | NUMA-Propelled Performance Increase



**Benefit: 15% to 30% boost in VM computing performance**

**Application scenario: multi-core applications with high memory access**

# 04 | Solid Reliability Assured by Software and Hardware

## Hardware-Level Reliability



### Innovative Technologies

- Proprietary power system with three core technologies, reducing power failure rates by 50%

### Reliability Design

- Advanced heat dissipation design, ensuring stable operations at a high temperature up to 45°C (113°F)
- Shock-resistant and noise-dampening drive design, lowering drive failure rates by 60%
- 80+ RAS characteristics

## Software-Level Reliability



### Node Redundancy

- In active-standby mode, the standby VRM node seamlessly takes over services if the active node fails, ensuring uninterrupted operation.

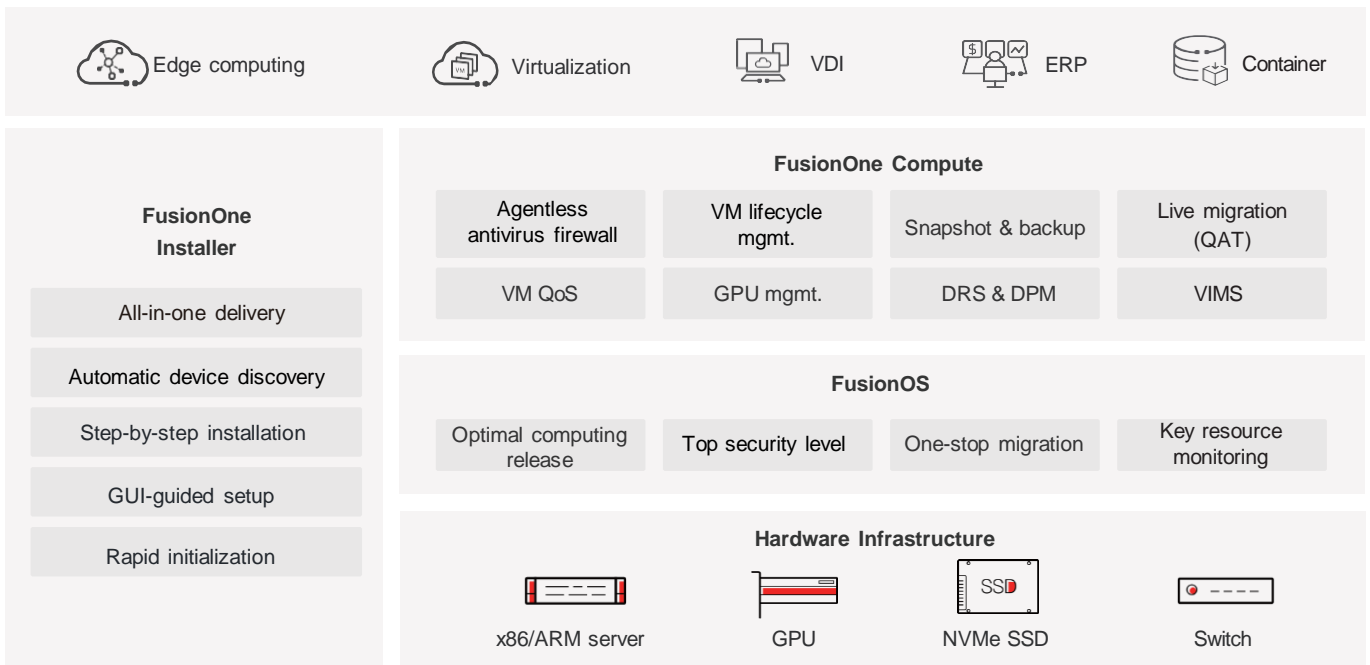
### VM HA

- The system automatically restarts a VM when it fails, ensuring rapid recovery and continuous application performance.

### Black Box

- The built-in black box collects vital system information for effortless troubleshooting during failures, simplifying maintenance and enhancing reliability.

# 05 | Architecture



# 06 | Typical Configurations

Specifications	2288H V6	2488H V6	2288H V7
Node	2U2S 8-drive passthrough	2U4S 8-drive passthrough	2U2S 8-drive passthrough
CPU	2 x 3 <sup>rd</sup> Gen Intel® Xeon® Scalable processors/ARM processors	4 x 3 <sup>rd</sup> Gen Intel® Xeon® Scalable processors	2 x 4th Gen Intel® Xeon® Scalable processors
GPU	A30/T4/A2/A10/A40 (passthrough & virtualization)		
Memory	DDR4 3200 MHz (minimum memory capacity: 32 GB)		DDR5 4800 MHz (minimum memory capacity: 32 GB)
System Drive	2 x 600 GB SAS HDDs/ 2 x 480 GB SATA SSDs		
Storage	Local storage (SAS/SATA)/NVMe passthrough/SAN (IP-SAN/FC-SAN)		
Network	GE/10GE/25GE		

# 07

## Key Software Highlights

<b>Virtualization</b>	<ul style="list-style-type: none"><li>- <b>Dynamic Resource Scheduling (DRS):</b> Enable load balancing under flexible policies.</li><li>- <b>Dynamic Power Management (DPM):</b> Monitor server and VM states for optimal energy efficiency.</li><li>- <b>Live Migration:</b> Move VMs between physical servers in the same cluster without business interruption.</li><li>- <b>Drive Migration:</b> Manually relocate VM drives to other storage units during normal operations.</li><li>- <b>VM Recovery:</b> Easily restore VMs from the recycle bin for routine maintenance.</li><li>- <b>Deletion Options:</b> Choose between secure deletion and common deletion for VMs.</li><li>- <b>CPU QoS:</b> Guarantee resource allocation for VMs.</li><li>- <b>Thin Provisioning:</b> Provide over-provisioning capabilities for users.</li><li>- <b>Distributed Virtual Switch Management:</b> Configure and maintain both physical and virtual ports on virtual switches.</li></ul>
<b>O&amp;M</b>	<ul style="list-style-type: none"><li>- <b>One-Click Installation:</b> Rapidly deploy system software, significantly simplifying virtualization setup.</li><li>- <b>Cluster Reliability:</b> Maintain HA and security of clusters.</li><li>- <b>Lifecycle Management:</b> Manage the entire lifecycle of VMs effortlessly.</li><li>- <b>Seamless Scaling:</b> Support smooth addition and removal of nodes.</li><li>- <b>One-Click Log Collection:</b> Gather logs efficiently from all components during system failures.</li><li>- <b>Safe Power-Off:</b> Execute safe power-off operations across all nodes with one click.</li></ul>
<b>Stability &amp; Reliability</b>	<ul style="list-style-type: none"><li>- <b>Telecom-Grade Components &amp; Processing:</b> Enhance overall system reliability significantly.</li><li>- <b>Hot Swapping:</b> Support hot-swappable SAS/SATA/NVMe drives.</li><li>- <b>Redundancy:</b> Accommodate two hot-swappable power modules for 1+1 redundancy.</li><li>- <b>Memory Failure Prediction:</b> Predict memory issues and employ self-healing techniques.</li><li>- <b>Node Redundancy:</b> Support active-standby VRM node redundancy deployment.</li><li>- <b>Automatic VM Recovery:</b> Recreate failed VMs on healthy compute nodes for swift recovery.</li><li>- <b>Regular Data Backup:</b> Support periodic local and remote backups of configuration data and business data.</li><li>- <b>Built-in Black Box:</b> Collect system information and retain critical failure data for analysis.</li></ul>

## More Information

For more information about xFusion,  
please contact your local representative office or visit our  
official website at [www.xfusion.com](http://www.xfusion.com)



xFusion official website



WeChat official account

## **xFusion Digital Technologies Co., Ltd.**

Consulting telephone: 400-080-6888

Technical hotline: 400-009-8999

Address: 9th Floor, Building 1, Zensun Boya Square, Longzihu Wisdom Island, Zhengdong New District, Zhengzhou, Henan Province

Website: [www.xfusion.com](http://www.xfusion.com)



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